**Twitter Spam Detection Using Natural Language**

**Processing by Encoder Decoder Model Alternate**

 **Title:** Twitter spam classification using machine learning techniques.

**Aim**:

 To enhance the assigning accuracy of former methods in spam detection in Twitter using advanced methods.

**Synopsis**:

 Social networking sites have become very popular in recent years. Users use them to find new friends, updates their existing friends with their latest thoughts and activities. Among these sites, Twitter is the fastest growing site. Its popularity also attracts many spammers to infiltrate legitimate users’ accounts with a large amount of spam messages. In this paper, we discuss some user-based and content-based features that are different between spammers and legitimate users. Then, we use these features to facilitate spam detection. Using the API methods provided by Twitter, we crawled active Twitter users, their followers/following information and their most recent 100 tweets. Then, we evaluated our detection scheme based on the suggested user and content-based features. Our results show that among the four classifiers and produce the best results.

**Existing System:**

 Stream clustering methods have been repeatedly used for spam ﬁltering in order to categorize input messages/tweets into spam and non-spam clusters. These methods assume each cluster contains a number of neighbor small (micro) clusters, where each micro-cluster has a symmetric distribution. Nonetheless, this assumption is not necessarily correct and big micro clusters might have asymmetric distribution. To enhance the assigning accuracy of former methods in their online phase, we suggest replacing by machine learning classiﬁers.

**Proposed System:**

 We discuss some user-based and content-based features that are different between spammers and legitimate users. Then, we use these features to facilitate spam detection. Using the API methods provided by Twitter, we crawled active Twitter users, their followers/following information and their most recent 100 tweets. Then, we evaluated our detection scheme based on the suggested user and content-based features. Firstly, exhaustive use of Natural language processing (NLP) techniques has been rendered towards creation of a new comprehensive dataset with a wide range of content-based features. After that, our results show that among the four classifiers we evaluated the accuracy results. Finally, we created a web application using flask. It will classify spam or ham.

**Modules:**

* Data Preprocessing
* ML and NLP
* Performance Statistics

**Data Preprocessing:**

The first and foremost step in data processing is collecting the dataset. We have collected a dataset based on Twitter spam data. The dataset is a CSV file format data which consists of n number of Twitter spam Data. We need to select or extract the features from the collected dataset. Then the Data Cleaning should be initiated. Thus in this module data preprocessing will be completed.

**ML and NLP:**

 We evaluated our detection scheme based on the suggested user and content-based features. Our results show that among the three classifiers

 **Machine Learning:**

* Decision Trees Classifier
* Support Vector Classifier
* Random Forest Classifier
* Naïve Bayes Classifier

 **Natural Language Processing:**

 NLP is a field in machine learning with the ability of a computer to understand, analyze, manipulate, and potentially generate human language. It is the ability of a system to understand and process human languages. A computer system only understands the language of 0’s and 1’s, it does not understand human languages like English or Hindi. Natural Language Processing gave the computing system the ability to understand English or the Hindi language.

**Performance Statistics:**

 This project results show that among the four classifiers we evaluated, the Random forest classifier produces the best results**.**

**Software Requirements:**

* Operating System : Windows 7 , 8, 10 (64 bit)
* Software : Python 3.7
* Tools : Anaconda (Jupyter Note Book IDE)
* Framework : Flask

**Hardware Requirements:**

* Hard Disk : 500GB and Above
* RAM : 4GB and Above
* Processor : I3 and Above

**Architecture Diagram:**

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Twitter API

Spam-Dataset

Cleaning & Pre-processing

Machine Learning &

NLP

Performance Chart

Feature Extraction